



# International Network of Women Engineers and Scientists

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## INWES MEMBER NEWSLETTER

### PRESIDENT'S MESSAGE

Dear members of INWES,

The year 2017 is the Year of the Fire Rooster - who is typically seen as passionate and strong-willed - and with that mind I wish you all a happy 2017, and express my hope that your year has begun filled with the same determination and enthusiasm the plucky rooster demonstrates at the start of the day.

**The INWES spirit is all about building actions for a gender equal, sustainable, technological, inclusive society.**

**We believe in the need for close networking because we believe it is one of the best ways to build the collective wisdom we need to make our world a more gender-equal place, and to improve the societies we live in.**

**We believe that that collective wisdom is built by extending our horizons - maximising diversity and openness.**

**Above all, we believe in the power of sharing our experiences and ideas, our passion and energy, our time and our care for each other - learning from one another and empowering each other as women scientists and engineers.**

In 2016, despite the great global turbulence of Brexit in Europe, Trump's election in the United States, and acts of terrorism around the world; there was a great deal of progress in the field of women in science and engineering. There is growing recognition on the global stage that the voice of women around the world should be heard. Gender diversity, the inclusion of woman power, and the promotion of networking for women in science and engineering are increasingly recognised as part of the international development agenda - as reflected in the UN Sustainable Development Goals, at the 2016 World Economic Forum (WEF) in Seoul and the G7 Summit in Japan. We are glad to see the spirit of INWES resonating with wider audience. I hope that INWES will serve as a pioneer in this field and play a critical role, as an international network

and through its regional networks, in global development through its promotion of the full and effective participation of women and girls in all aspects of science, technology, engineering and mathematics (STEM).

INWES has flourished in 2016; and INWES members, including board and executive members, have had a busy and exciting time. I

would like to take this opportunity to thank all of you for making 2016 another productive year for INWES. In August 2016, the first INWES Regional Network, Asia Pacific Nation Network (APNN) met in New Zealand, alongside a Diversity in Action Summit hosted by Institution of Professional Engineers New Zealand (IPENZ), and was a hugely successful. Those of us who attended enjoyed the chance to learn more about efforts being made to support women in engineering in New Zealand and experience its friendly and collaborative culture for ourselves.

The INWES 2016 Regional Conference was held in Freising, Germany from 4th to 6th November. It was hosted by the German Association of Women Engineers (DIB - Deutscher Ingenieurinnenbund) under the theme of "Science, Knowledge, Power", in conjunction with the 30th anniversary conference of DIB. About 190 participants from thirty countries enjoyed a brilliant opportunity to expand their networking and knowledge. Board members and participants, myself included, were very impressed by the volunteering efforts and heartfelt caring the members of DIB extended to us all. I want to acknowledge Sylvia Kegel (Treasurer of DIB) and all the members of DIB who were involved. We would also like

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### EVENTS

<b>International Day for Women and Girls in Science</b>
11 February
<b>International Women in Engineering Day</b>
23 June
<b>ICWES 17</b>
3 - 5 October 2017, India.
<b>2017 INWES APNN</b>
14 - 15 July, Japan

to thank UNESCO for supporting travel awards for African members.

Another INWES historic cornerstone was laid this year in the form of our latest INWES Regional Network, INWES Europe, which held a constitutional meeting on 4th November following great efforts by our INWES European members. The network will enable the voices of European women engineers and scientists to be raised at national and regional levels. At the meeting, the structure and strategy of INWES Europe was discussed and the next meeting scheduled to be held in France, in June 2017. INWES Europe will facilitate the collaboration of a number different European organisations - both those with a long history like the the Women's Engineering Society (WES) in the UK which has been running for almost 100 years, DIB which has been running in Germany for thirty years, and the French

Women Engineers which has been running for thirty-five years; and those which are just getting started - harnessing their collective expertise and creating new "herstory" for European STEM.

With the help of DIB, the INWES board meeting was held from 2<sup>nd</sup> to 3<sup>rd</sup> November. Ten INWES board members and fifteen invited guests attended the meeting and discussed INWES' annual activities, plans for action, and strategy plans for the future of INWES. We wrapped up our INWES activities for 2016 with the INWES online annual general meeting (AGM) on 19<sup>th</sup> December. The meeting was initiated by Liette Vasseur (INWES President-Elect) from St. Catharines, Ontario, Canada; and approved both the President's Annual Report and the Treasurer's Report. Thanks to the tremendous efforts of Margaret Ajibode, the AGM went very smoothly. During my time participating in INWES activities, I has been always impressed by the great teamwork everyone demonstrates, working hard and communicating effectively across oceans and time zones to strengthen INWES and have a positive impact on STEM globally.

I hope 2017 will be another great year in INWES "herstory", since the

triennial International Conference of Women Engineers and Scientists (ICWES17) will be held from 5th to 7th of October in New Delhi, India, hosted by Women in Science and Engineering (WiSE) India; and a new board will be elected at the AGM held alongside the conference. We are expecting this conference to be another triumph in a long line of successful ICWES conferences, that started in 1964. We also have the INWES Asia Pacific Nation Network (APNN) Meeting, hosted by the Japan Network of Women Engineers and Scientists (JNWES) in Japan, to look forward to in July.

As always, I look forward to having more of you involved in INWES activities in the coming year, and hope that you and your organization feel empowered to achieve the changes you want to see in the STEM field. Best of luck for the year ahead!



**Kong-Joo Lee, Ph.D.**  
INWES President

## INWES MEMBER NEWS

### SUCCESSFUL NATIONAL WOMEN IN ENGINEERING DAY PLANS TO GO INTERNATIONAL

*The United Kingdom*

The Women's Engineering Society (WES) enjoyed tremendous success with their National Women in Engineering Day



(NWED) on the 23<sup>rd</sup> June 2016. WES estimate that many tens of thousands of girls, their parents, and teachers were reached on the day and during the week by this campaign!

An inaugural list of the "Top 50 Women in Engineering" was published in the UK national newspaper, *The Daily Telegraph*. Over 550 separate events held on the day across the UK: over 200 events held by companies and organisations and over 350

school events. 1500 resource packs were downloaded from the NWED website, and over 400 resource packs were sent out by post. There were over 100 requests for additional classroom resources to support school outreach work.

We reached over 1 million people on social media via a Thunderclap campaign on twitter, that amplifies your social media presence through harnessing the social media following of cause supporters. The official hashtag #nwed2016 receiving over 15,000 posts on the day, which saw the hashtag trending for around 8 hours on Twitter, second only to EU referendum related posts. On the day, the hashtag #nwed2016 received 1,550,728 impressions and #raisingprofiles received 109,325 impressions. Our official website [www.nwed.org.uk](http://www.nwed.org.uk) received nearly 42,000 unique visitors and over 35,000 page views on the day. The total number of plays of the NWED "Pushing Boundaries" video reached over 500 plays, and was seen by many times this number of students as it was shown in schools.

NWED was reported in over 150 national

and local newspapers and online articles in the UK and internationally. The BBC and Sky News television channels covered the day in their evening news slots, and BBC Woman's Hour, along with a number of other radio shows also featured women in engineering.

In 2017 NWED is going international, with UNESCO patronage to endorse the event worldwide. The International Women in Engineering Day 2017 will take place on 23<sup>rd</sup> June 2017. They already have their first few international partners on board, and they hope to use international contacts made through the newly formed INWES Europe network to encourage other organisations to become their country's host coordinator.

To find out more and get involved: <http://www.inwed.org.uk/>

### CHAIR OF AWSE PARTICIPATES IN SYMPOSIUM ON WOMEN

*The Netherlands / Kenya*

The Technical Secretariat of the Organisation for the Prohibition of Chemical Weapons invited Professor Caroline Thoruwa to participate as a speaker at their Symposium on Women in Chemistry, held at their headquarters in the Hague, in the Netherlands, on 17<sup>th</sup> May, 2016. Thoruwa, who is a professor at

I am from Timor-Leste, a small country in South-East Asia with a population of 1.2 million people. 72% of people in Timor-Leste live in rural areas, which are mostly mountainous and often remote. At the end of Indonesia's occupation of Timor-Leste I moved to Indonesia and was lucky enough to complete my studies and gain a degree in engineering.



Many Timorese people could not study during this time because of insecurity. This insecurity has meant that Timorese education standards are low, especially in technical areas such as engineering. Important technical skills are very much needed at the moment as our country is new. Currently new roads; infrastructure; and water, sanitation and hygiene (WASH) services are being built to develop our country. A shortage of skills and education means that many years of work is required before our country becomes strong once again. I moved back to Timor when I completed my studies, despite having many job opportunities in Indonesia, as I am passionate about helping to develop my country. There are very few women working in technical roles in the WASH sector in Timor.



Currently I am working as a Technical Officer at WaterAid, an international organization that works with disadvantaged and marginalised communities in rural Timor-Leste to provide WASH services. WaterAid's vision is a world where everyone, everywhere has safe water, sanitation and hygiene. We work with local partners, NGOs, and decision-makers to maximise our impact.

I am part of a group of Timorese women who have created a Women in Engineering (WiE) group with support from Engineers without Borders Australia, who collaborate in Timor-Leste with WaterAid and Plan International. It is a group where women can discuss the challenges and successes of the technical work they are doing in our country and how we can support each other in technical areas where men often make most of the decisions.

The activities that the WiE group engage in include: raising awareness and sharing experiences about engineering in secondary schools; supporting the District Technical Officers (DTO) and leaders of community water user groups to participate in municipality events and promote WiE at the community level; cleaning the beach; participating in International Women's Day; and of course, meeting regularly to talk about our plans. We want to show the vital role women can play in both development and engineering.

Through this group I have found other strong women who really motivate me - to share dreams, goals and expectations; and to destroy the prevailing mindset in which women are not highly valued, and seldom supported or encouraged to develop skills in the world of engineering.

*Apolonia Asteria Barreto*

## A NEW REGIONAL NETWORK IS BORN : INWES EUROPE

*Germany / Europe*

While unity in Europe is in some question and politicians argue, it becomes even more important that women scientists and engineers across Europe are connected by the newly launched INWES Europe. INWES Europe was launched at the INWES Regional Conference held in Freising, Germany on the 4<sup>th</sup> November 2016, and joins the INWES Asia Pacific Nation Network (APNN, 2009) and the INWES African Regional Network (ARN, 2010). Our vision is that it should be an open, inspiring, influential network at a European level that every woman in STEM in Europe wants to join.

We have identified the following key strategic objectives:

- To enable international cooperation among national associations of women in STEM.
- To represent the interests of all women in STEM on a European level.
- To reinforce the key role of women in STEM in building a sustainable and inclusive society.
- To leverage European diversity and harness innovative synergies.
- To promote a balanced life for all in the modern world.

Elected board members are Sylvia Kegel of the German Association of Women Engineers (DIB), Germany, as Chair of INWES Europe;



Yvette Ramos, of Swiss Engineering as Secretary General; Soizic Vangrevelynghe from France, as lead for membership and partnerships; Betty Azzarelli from the UK as lead on projects; and Dr. Sarah Peers of the Women's Engineering Society (WES), UK, as lead for

communications. The board is supported by long-standing and active INWES members Milada Williams, Dr. Aude Martin, Professor Lylian Dorveaux, Professor Lidia Zakowska, and Dr. Sabina Pulowska as deputies.

Initial meetings will be focused on creating the necessary organisational structures, identifying requirements for communications, and deciding on immediate projects. In particular, INWES Europe will be building on existing INWES national members' projects such as Elles-En-Science for female students in France, KidsInfo for younger students in Switzerland, the Refugees as key forces into Europe project in Germany, and MentorSET in the UK, a mentoring programme for professionals.

INWES Europe's next meeting and conference will be held in Montpellier, France, on 9<sup>th</sup> and 10<sup>th</sup> June 2017, with EPF Ecole d'Ingénieurs - a top engineering school in France and a recently joined INWES institutional member - as our host. The overarching theme will be "Mentoring and Coaching for Entrepreneurship" and we will pursue immediate steps and develop plans for Europe-wide activities to support women engineers and scientists, to help them fulfil their potential and amplify their voices.

*Dr Sarah Peers and Yvette Ramos*  
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Kenyatta University in Kenya, is one of the founding members and chair of the Association of African Women in Science and Engineering (AWSE) - an INWES organisational member.



The one-day symposium aimed to illustrate the strength and depth of the contributions of women in chemistry; to raise awareness of capacity development for women in chemistry; and to promote international solidarity and cooperation. Participants included distinguished representatives from government, the scientific community, chemical industry, academia, and civil society.

Professor Thoruwa was the lead panelist for a roundtable discussion on capacity development for women chemists in developing countries. The title of her presentation was "Capacity development for women chemists in developing countries: Challenges, opportunities, and needs for women chemists in terms of capacity development".

#### TWIST IS ACTIVE AT HOME AND ABROAD

##### *Taiwan*

In late October, two graduate students from The Society of Taiwan Women in Science and Technology (TWiST), and Professor Chia-Li Wu, were invited to

attend the Young Women Scientists Camp in Daejeon, Korea, sponsored by the Association of Korean Women Scientists and Engineers (KWSE).

The students were very excited about the events. They brought a great variety of decorations to embellish the country booth for Taiwan, and also rented a set of Taiwan aboriginal ornaments to wear for a performance in the evening programme. They really enjoy the sisterhood at the camp and making many friends, and felt encouraged and empowered by the two-day camp.

Chia-Li gave a talk entitled "Be a STEM Woman in the Coming Society" to echo the camp theme of "Future Society, Science, and Women". In early November, both Chia-Li Wu and Shun-Lien Sung attended the INWES Board Meeting as

#### EQUITY, DIVERSITY AND INCLUSIVITY: MEETING THE CHALLENGE

*Canada*

On 8<sup>th</sup> November, 2016, I participated in a symposium entitled "Achieving Diversity in Stem – Advancing Innovation", as part of the Canadian Science Policy Conference in Ottawa, Ontario, Canada. This symposium was organized by Imogen Coe from Ryerson University, Toronto, Canada. The panelists included: Kristin Baetz, Interim Director, Ottawa Institute of Systems Biology, University of Ottawa; Jennifer Flanagan, CEO and Co-founder, Actua; Gabrielle Genreux, Student, Carleton University; Emily Haws, Student, Carleton University; Jeremy Kerr, President, Canadian Society for Ecology and Evolution; Annika Pint, FIRST Robotics Administrator, Toronto District School Board; Marisa Sterling, First Assistant Dean Inclusivity and Diversity, York University's Lassonde School of Engineering; and myself, Liette Vasseur, UNESCO Chair on Community Sustainability, Brock University.

The symposium was very interesting and demonstrated the importance of continuing to discuss issues related to women in science, technology, engineering and mathematics (STEM) leadership at all levels. To fully embrace equity, diversity, and inclusivity, it is necessary to consider the way language is often

used to discriminate and recognise the need to be accurate in how issues around women in leadership are being presented. The importance of accurate representations can be related to the way women entering post-secondary education are portrayed and devalued. There were a number of promising initiatives discussed during the symposium, showing that inclusivity is possible but has to be started from early education, not only at post-secondary institutions.

Mentoring was discussed as one of the main actions that can be taken. Mentoring is important not only for girls but also for other groups, such as students with disabilities. It was suggested that mentors should have certified skills in mental health and first aid, where necessary, to reduce risks. Increasing participation with industry was also highlighted as important. Encouraging industry to support students in K-12 (primary and secondary education) can be strategic for two reasons: having the industry understand the capacity of all students (not only boys) as potential employees, and keeping the doors to STEM fields open to girls. Other discussions have emphasised that the K-12 curriculum in STEM should be adapted to ensure the full participation and engagement

of all students in a diversity of disciplines, so they can decide the areas in which they can excel the most. Currently the curriculum of most institutions still does not adopt an equity, diversity, and inclusivity framework. This continues to be a challenge.

The absence of an equity, diversity, and inclusivity framework also remains a challenge within employment. For example, Coe's group discovered that approximately only seven out of over 110 scientific organizations in Canada had a statement on equity, diversity, and inclusivity. It would be interesting to look around the world to determine whether this is the same globally. The discussions around these issues inspired me to think more about the need for these kinds of frameworks. I am already putting forward a motion for the Canadian Botanical Association to include such a statement in our own organization. But what about INWES? While we are an international organization of women, to what degree are we really explicitly stating our need for equity, diversity and inclusivity?

Another aspect that remains a challenge is how the media portray STEM and how little they contribute to representation of women in these fields. There is a need to engage with media to reduce the

stereotyping that is currently being seen across the world. Media can become a strong support to educate the public about biases. This also means engaging more men in supporting and working on the cause of equity, diversity and inclusivity. Social media can be used to bring the message to all, especially young people. Another idea was to make sure that the politicians also talk the right language - both as regards science, and as regards equity, diversity and inclusivity. There have been major steps in Canada with the Trudeau government but much more remains to be done.

Many more ideas were explored during the symposium. It was nice seeing how many of us (including some men) were already committed to equity, diversity and inclusivity. Many more steps have to be undertaken to achieve full understanding and engagement in this matter but there are very good concrete examples that can be shared. I wanted to finish with a reminder of the kind of message we need to share with girls early in life: "Teach girls to be brave, not perfect, and to embrace failure as necessary to achieving success". This type of attitude should be encouraged everywhere.

*Liette Vasseur*

*The United States*

## DEVELOPING AN ECOLOGICAL WASTEWATER TREATMENT SYSTEM

I'm working - as part of Aparri Engineering, LLC (AELLC) - on a project designing an ecological wastewater treatment system (EWTS) for Connetquot River State Park Preserve in Long Island, United States. The New York City Department of Parks and Recreation, in response to a pressing need to protect the diverse wildlife which calls their parks home, has set out to incorporate green infrastructure projects into the parks. The Connetquot River State Park project is one such project. While the project will have local benefits, I am also hoping that it will help further understanding of wastewater treatment solutions, which are vitally needed around the world.

The Connetquot River State Park Preserve consists of 3,473 acres of land and water for the protection of game birds, fish and animals. The park is home to deer, waterfowl, rare nesting birds, rare plants, and beautiful flowers like trailing arbutus and pink lady slippers. An ecological wastewater treatment system will be a valuable addition to the park. Furthermore, this demonstration project will provide useful information on the efficiency of ecological systems at meeting the needs of the park and protecting natural resources and wildlife in the area.

The EWTS at the park will receive and treat domestic wastewaters generated from the buildings at Connetquot River State Park Preserve. The EWTS system includes floating macrophytes that treat domestic wastewater. This system will treat 2,500 gallons per day flow. The influent wastewater characteristics are Biochemical Oxygen Demand (BOD)=340 mg/l, Total Suspended Solids (TSS)= 330 mg/l and Nitrogen=75mg/l. The target effluent wastewater is BOD=10 mg/l, TSS 10 mg/l and Nitrogen= 10mg/l. To achieve this result, the system uses technology sourced from Spain and incorporated into this project with collaboration from Spanish designers.

The design of the EWTS system as a whole is a professional collaboration between Cashin Associates P.C., the EWTS Group and AELLC. Jamena Grant is working with Leo Aparri, as part of AELLC, a firm based in New York City. They have been working on design development for the project since 2016 with construction currently scheduled for 2017. AELLC excels in designing and managing large, small, difficult and challenging projects like this. The EWTS system design is part of a larger Sanitary System Improvements project, and Cashin Associates P.C. has responsibility for the overall civil site design.

I'm conscious that this kind of ecological wastewater treatment technology is sorely needed around the world. There are many people in the world who fall ill from disease due to raw wastewater and lack of proper sanitary toilet facilities and wastewater processing. The hope for this project is that the information obtained and analysis developed from this demonstration will be a catalyst for developing additional wastewater treatment solutions in the future. Efficient and reasonably priced wastewater technology is in need globally and in the long-run these projects take us one step further on a technology journey that has the potential to benefit many people, as well as fragile habitats.

*Jamena Grant, INWES Member  
jamena.grant@gmail.com*

well as the European Regional Conference in Freising, Germany.

On 10<sup>th</sup> December a press party was held to celebrate the release of a book called, "The Sense and Sensibility of Woman Scientists", which includes encouraging stories from thirty-seven female scientists and engineers. Later in the day, the TWiST Annual General Meeting took place with several participants sharing reports.

## AWSE RUNS LEADERSHIP SEMINAR

Kenya

As part of a series of leadership seminars for young women in STEM, aimed at empowering postgraduate students, including early career faculty members, with leadership skills, the Association of African Women in Science and Engineering (AWSE) organised a leadership seminar at Kenyatta University in Nairobi, Kenya on 21<sup>st</sup> October 2016. There were fifty participants including graduate students from local universities, Kenyatta University Female Students in Science and Technology (KUFESST) members, and alumni. The

seminar was interactive, allowing the trainers to engage with the participants.

Professor Thoruwa gave a brief presentation on INWES, the African Regional Network (ARN) and AWSE - explaining the interrelationships between the three organisations and the benefits of enrolling as individual or corporate members. The leadership training topics for the day were: "Understanding gender: Implications for upcoming women scientists and engineers" by Professor Grace Wamue Ngare, an expert on gender issues and an AWSE member; and "Journey to self-discovery and self-branding" by Sarah Kajuju, a leadership coach, trainer, and consultant.

Grace Wamue Ngare took the participants through gender concepts; gender-related factors militating against women scientists and engineers; and strategies for overcoming gender biases and stereotypes. She acknowledged that women often have to work harder and be more innovative in overcoming challenges than their male counterparts; and challenged the female scientists present to be like a river that finds its way to its final destination, despite

the stumbling rocks in its way. She concluded that change has to be catalysed by women scientists and engineers themselves.

Sarah Kajuju emphasised the importance of self-discovery and self-branding leadership skills in helping you to better understand yourself and others, and ultimately achieve higher productivity and better teamwork. Being self-aware helps you to recognise your talents; appreciate and bridge personality differences; and identify areas for personal improvement. As regards branding, she stressed the importance of the three C's - clarity, consistency and constancy. On a broader note, she challenged the women scientists to celebrate each other and see the beauty in diversity.

Also in attendance were several senior faculty members and staff mentors - some of whom are also AWSE members. Professor Obando, Professor Murungi, Dr Mandete, and Irene Obando shared their personal experiences and emphasised the importance of hard work, mentorship, endurance, proper time management, family support, resilience, and self-belief.

## AN UPDATE FROM AWSE

African Women Scientists and Engineers (AWSE) has been busily engaged in a range of activities this year, engaging with industry, universities, social media, and the African Regional Network (ARN). We organised a round table mentorship lunch with engineering students at the University of Botswana in November, allowing them to interact with a mentor from the industry. We have also worked closely with the Kenyatta University Female Students in Science and Technology (KUFESST), a club of undergraduate female students at Kenyatta University which is affiliated to AWSE. The club engages in various activities such as, leadership seminars, mentorships, internships and community outreach programmes to enhance both the participation and performance of female students in science and technology. Since its inception a marked improvement in performance has been noted, with some alumni attaining first class honours and proceeding to postgraduate studies. We have supported them in a number of activities including, their Annual General Meeting and Prize Giving Day, which honoured top female students in mathematics, science, and engineering. Kenyatta University.

Moving forward, we intend to pursue an entrepreneurship angle for women in Africa. We want to provide empowerment and leadership experience to women willing to pursue scientific "techpreneurship". We plan to have two programmes this year, targeting upcoming techpreneurs. We also seek to increase our linkages with industrial partners. We believe their involvement is critical in ensuring that we see growth in the numbers of women

## Africa



in science and technology. We are currently in the process of organising a job shadow programme, where we get young girls at high school level to shadow an engineer or a scientist. We hope that this will be a regular undertaking by AWSE.

We plan to launch and strengthen country and institutional chapters in a number of countries. The Tanzanian Chapter is due to be launched in early 2017. We are seeking partnerships with the public and private sectors in different countries to support both ARN and AWSE activities; and we aim to recruit more members to AWSE and more African associations to the ARN. We want to replicate our leadership seminars, the effective KUFESST model for engagement with universities, and the Bavubuka Tweekembe Uganda Youth programme - an AWSE community outreach and technology transfer programme focused on agricultural activities - in other AWSE chapters across Africa. We hope that these activities can be coordinated by ARN in future.

Meanwhile, we are currently trying to update and improve the AWSE brochure and AWSE website, and set up an online presence through social media. We have been active on Facebook and Twitter, and are slowly gaining a following. The platform makes it

particularly easy to engage with women in technology all over Africa and draw inspiration from one another. We have set up a blog, which aims to increase the visibility of African female scientist and engineers, expose our readers to the different careers available in science, and encourage engineers to engage in development and social entrepreneurship activities. We currently

have a large readership, and hope to engage many more scientists and engineers all over Africa.

*Professor Carolyne Thoruwa,  
AWSE*

*South Korea / Taiwan*

## THE 2016 YOUNG WOMAN SCIENTIST CAMP

The 2016 Young Woman Scientist (YWS) Camp sponsored by KWSE and APNN was held on 22<sup>nd</sup> and 23<sup>rd</sup> November in Daejeon, South Korea. Seventy-seven young female scientists from twenty-two countries in the Pacific Nation and Asia region, and other parts of the world were invited to participate in the two-day camp. Among them, twenty-two students were recommended by APNN members, and the rest were invited foreign graduate students studying at Korean universities.

The YWS Camp Program was started in 2012. Daejeon, which is located in the center of South Korea, about fifty minutes away from Seoul by high-speed train, previously hosted the event in 2015. The city of Daejeon is known as "Asia's Silicon Valley" and is often described as high technology city, with many technical universities located here.

The camp has been run for four years, and some of the popular programmes are included every year, such as the K-pop dance event, the costume show, lectures, group mentoring, and the global issue discussion, as well as student's oral and poster presentations. This year the camp started with an exhibition of country-themed booths to break the ice. All the students were very enthusiastic in decorating their own booths with scenic posters, pamphlets, postcards, costumes, handicrafts and art works. Dr. Sung Mo Steve Kang, President of the Korea Advanced Institute of Science and Technology, delivered the plenary talk on strategies for female science and technology professionals on the morning of the first day. In the afternoon, five talks were given by so-called "smart sisters" who are foreign students studying in Korean universities, and another five oral presentations by participants recommended from APNN countries. There were also time slots for poster presentations and discussions. In each session, a prize was voted on by students, whether for best poster, best oral presentation, best costume, or most popular sister; and these prizes



were awarded in the closing ceremony.

On the morning of the second day, four lectures were given by invited speakers. They were: "Strengthening women's network in STEM is a global priority" by Dr. Jung Sun Kim (Vice President of Dongseo University), "INWES APNN - Introduction and Activities" by Dr. Kayoko Sugahara (Chair of APNN, President of INWES), "Cracking the inclusive code for the Asia Pacific" by Dr. Wai-Yie Leong (Chair of Women Engineers Section, Malaysia), and "Be a STEM woman in the coming society" by myself, Dr. Chia-Li Wu (Emeritus Professor of Tamkang University). The programme was not all talk though - it included lots of interactive activities to keep young people excited and engaged!

In group mentoring, students were pre-arranged in nine groups, each of which was led by a mentor. The main theme given was "Recreate yourself, enhance ability, and be strong". After lots of passionate discussion, they had to draw their ideas on a big poster for presentation. In the global issue discussion group, the problem given was "How to face the world food crisis in 2050 from the perspective of gender in STEM?" Students not only tried hard to express themselves in English, but also learned so much from each other. They realized that there might be different solutions in different regions of the world.

The evening welcome party was another high point with a Taekwondo performance by college student club members. Both boys and girls kicked boards with impressive accuracy and won warm applause every time. All in all, I think the YWS Camp is a very good programme to give young women scientists an excellent opportunity to develop their strengths, feel sisterhood together, and make friends internationally. I hope that either KWSE or APNN can keep track of those students who have participated in YWS Camp and follow up on their work after ten or twenty years. I am sure that many of them will be leaders in their countries or their fields. I have high hopes for all of them!

*Chia-Li Wu  
Emeritus Professor of Tamkang University  
Supervisor of TWiST, Taiwan*

# REGIONAL CONFERENCE IN GERMANY



## **The INWES Regional Conference DIB 30<sup>th</sup> Anniversary**

Freising, Germany  
4<sup>th</sup> - 6<sup>th</sup> November 2016

190 women in technology and science from all over the world - from Nigeria and Korea, to Switzerland and the US - joined the INWES Regional Conference in Freising, hosted by the German Association of Women Engineers (DIB - deutscher ingenieurinnenbund) in the lovely setting of Kardinal-Döpfner-Haus. The theme "Science, Knowledge, Power" flowed through the many inspirational keynotes, talks and workshops, which covered everything from big data and the marketing behind Opel, to the development of strategic thinking skills through late-night poker!

The INWES Board meeting and the launch of the INWES Europe regional network took place in the days leading to the conference - 3<sup>rd</sup> and 4<sup>th</sup> November - at the same venue. The hosts are to be congratulated for the tours laid on for board members and observers, including a brewery visit in Munich, and a visit to the Fraunhofer IVV Research Institute, a research institute for food engineering and technology.

The conference opened with an evening session on Friday and kicked off with a warm welcome by the conference chair, Sylvia Kegel of DIB; and an opening speech by Kong-Joo Lee, President of INWES, and Dr. Lutz Möller, German Section UNESCO Head of Division of Sustainable Development, Science. They were followed by inspirational and entertaining keynotes from two influential women: Tina Muller, Chief Marketing Officer of Opel Group GmbH, who spoke of the innovative brand strategy behind Opel's industry comeback; and Alexandra Borchardt, Managing Editor of Süddeutsche Zeitung, who talked about the role of women in global growth and the way in which her business magazine "Plan-W" has tapped into female power.



The conference itself was made up of several parallel streams, to allow for a range of technical and global business talks, and personal development workshops (including the amusingly named, "Pimp my Tarifvertrag" workshop); along with many networking opportunities over coffee breaks, dinners, and interactive entertainment. The speakers included influential leaders from industry, and researchers and new graduates from across the globe sharing their knowledge and experiences.

Aside from the great entertainment and the many tours, there was also a Kinder Programme running in parallel to the main programme. Delegates brought their kids along to the conference and they very much enjoyed the robotics challenges and Kids' University. Volunteer engineering and science students from Germany, the UK, and Tunisia supported the running of the days.

On Sunday, the conference welcomed students to their own congress. This included a number of presentations from startups, describing their innovations. The congress was rounded off with a Young Leadership Roundtable, in which invited guests joined in a discussion on the essentials for leadership, addressing questions like: "How brave should a woman be?". Four of the candidates of "Die Astronautin" (<http://dieastronautin.de/>), an initiative by HE Space, aiming to send the first female German astronaut into space, talked about their technical backgrounds and experiences as aspiring astronauts. They were joined by Dr Annegret Jennewein-Kobel from the Strascheg Center for Entrepreneurship, who introduced their innovative product development concepts and the startups behind them. From the Women's Engineering Society (WES) in the UK, the Chair of the WES Young Members

Board (YMB), Jo Douglas, shared how the YMB works and its plans, and talked about their #LottieTour Twitter campaign as an example of how to engage younger people in engineering and science.

The conference was honoured to have UNESCO as a patron, and UNESCO supported travel funds for selected speakers at the conference. Presentations, tours and workshops were held partly in English and partly in German;

keynotes and entertainment were interpreted synchronously by Leon Ivanov, who generously offered his services.

INWES and DIB are grateful to all the sponsors: Airbus Group, ENBW, Bertrand, Daikin, EDAG and Schneider Electric; and partners: Komm Mach Mint, CyberMentor, the Global Centre for gifted and talented children, Makers Magazin, EPWS, WES (Women's Engineering Society), and GI.

For podcasts from the conference and further information: <http://dibtagung2016.de/en/>





United Nations  
Educational, Scientific and  
Cultural Organization

Under the patronage of  
**UNESCO**



*The INWES Regional Conference*



## 2016 INWES BOARD MEETING IN GERMANY

On 2<sup>nd</sup> and 3<sup>rd</sup> November, the directors met for the 21<sup>st</sup> annual board meeting to discuss activities and strategies for the coming year. Ten board members were present as well as fifteen guests from all over the globe. Another board member was able to participate in the meeting over Skype.

On the first day, after a tour de table to introduce the participants, President Kong-Joo Lee kicked off the meeting, after introductions, with a report on the year's activities. Different executive committee members also presented.

The President-Elect discussed the development of a reporting structure for the regional networks, the establishment of INWES Europe, this year's Asia and Pacific Nation Network (APNN) meeting, and the postponement of the African Regional Network (ARN) conference. The treasurer discussed changes in the accounting system and the establishment of the Paypal system to pay memberships. The chair of communications discussed the website and the newsletter; and additional features that are under development or consideration.

Members representing different national organisations were also invited to share their activities for the year and some of the progress that has been made in their respective countries. The INWES Education and Research Institute (ERI) also presented a report to the board and stressed the importance of members sending proposals to ERI for projects they wanted to see initiated.

Preparations for ICWES17 - which will take place in New Delhi, India in October - were also discussed, and in particular, concerns around ensuring the affordability of the conference for attendees.

The nomination process for the new board of directors who will be selected at ICWES17, was also discussed and the nominating committee initiated, so that the nomination process can start in the summer. Directors who have been on the board for two



terms are not eligible for a third mandate, which means that that ten out of eighteen members will need to be replaced and voted on.

The board also found time on the first day to discuss in length potential activities for INWES to engage in, such as a video for the International Day of Women and Girls in Science; as well as organisational topics, such as UNESCO's financial contribution and the Annual General Meeting (AGM) to be held the following month.

The second day was focused largely on strategic planning and vision. This was of particular importance to clarify and develop given that the next board will have several new members. Part of the day was also spent in working groups developing ideas and potential action items around the issues of education, information sharing, funding, communication and membership.

*Liette Vasseur*  
*President Elect*

# THE 2016 INWES AGM

INWES had their 12<sup>th</sup> Annual General Meeting on 19<sup>th</sup> December 2016. The AGM took place online and participants included those who attended via video conferencing and those who sent in proxy or electronic votes.

Out of twenty-eight members in good standing, nine members were present and five members sent in their proxy or voting forms, exceeding the 15% minimum set required by current bylaw to form a quorum. The President welcomed everyone in attendance, and then the AGM was officially opened by the INWES President-Elect.

The participants voted a number of documents, which were sent to all INWES members in advance electronically, including the the President's Annual Report and the 2015 Financial Statement. Those present voted unanimously to approve the Executive Committee's recommendation that the reports presented at the AGM be carried forward and accepted – with one amendment made to the President's Report.

**During the meeting, brief updates were given by the Conference Chair, regarding the following issues:**

*The Regional Conference in Germany:*

The recent Regional Conference hosted by DIB in Germany on November 2016 was hailed a success. 190 delegates attended, including students, with approximately thirty international delegates. Nine delegates received travel grants from UNESCO; these recipients were from Nigeria, Senegal, Nepal, Kenya and Tunisia. The INWES Conference Chair thanked DIB for hosting a hugely successful event.

*ICWES17:*

The President for WISE India gave a progress report on the event, which is to be held in New Delhi, India from 3 – 5 October 2017. The venue will be the JW Marriott hotel at the AERO City complex, close to the international terminal in New Delhi. A number of hotels and other forms of accommodation will be available nearby for INWES delegates to choose from at a variety of price points. A conference price of \$400 has been agreed, which includes lunches and dinner, a welcome reception and gala, a delegate kit, and a trip to the Taj Mahal in Agra. A call for papers was made at the end of December 2016. Details for publicity purposes will soon be made available.

*Call for Proposals for ICWES18 in 2020:*

Four organisations have shown interest in hosting ICWES18 in 2020. INWES has received a proposal from one organisation, and three more are expected by the deadline. Applications will be reviewed by the conference committee.

*Call for Proposals for the 2018 Regional Conference:*

The Call for Proposals for the Regional Conference in 2018 will be sent out in the spring of 2017.

**A brief update was also given by the Network Chair on the following topics:**

*Chartering of INWES Europe:*

Congratulations were expressed to INWES Europe, which was launched in November at the regional conference and is now an official network of INWES. Their next meeting is on 9<sup>th</sup> June 2017.

*INWES Asia - The Asia and Pacific Nation Network (APNN):*

The APNN's next meeting will be held in Japan from 14<sup>th</sup> – 15<sup>th</sup> July 2017.

*INWES Africa - The African Regional Network (ARN):*

There was a successful meeting held in Germany in November regarding support and funding, and an online meeting is scheduled to finalise dates for the network meeting in Cameroon that was postponed.

*Development of Network Logos:*

All networks have now received potential logos for their respective networks.

**Other important items of discussions included:**

*Call for INWES Director Nominations for 2018-2020:*

Elections will be held at ICWES17 for eight new directors. Please note that INWES directors can only be appointed for two terms and then have to step down for three years before they can be re-elected.

*The International Day of Women in Science:*

At the board meeting in November we discussed promoting INWES in the period around the International Day of Women in Science using a video clip featuring the activities of different INWES members. The video clip will be made in Korean and English and be circulated in the respective countries and abroad.

Overall, the AGM was a huge success - with all items on the agenda discussed - and we would like to express our thanks to everyone who participated.

*Margaret Ajibode  
Secretary General*

# MAKING HERSTORY

## "HERSTORY" - WOMEN'S EXPERIENCES IN ENGINEERING: AN INTERVIEW WITH MONIQUE MOUTAUD



**What is your name?**

Monique (Poussin) Moutaud

**Where were you born?**

In Chartres, France

**Where did you grow up?**

In Nogent-le Rotrou, which is about 150km south-west of Paris in France

**Where have you lived?**

When I was young I lived in a small village, and then in a town until I graduated secondary school with a baccalauréat and moved to Paris for Higher Education. After getting my engineering diploma, I stayed in Paris for my professional career.

**What college did you attend?**

I attended an engineering school called the Polytechnic School for Women (EPF - Ecole Polytechnique Feminine), in the suburbs of Paris. It was one of the first engineering schools in France to admit women, and was in fact women-only until 1994. It has since become co-educational and changed its name to EPF Ecole d'Ingénieur.

**Was there a moment when you decided you wanted to be an engineer or scientist?**

When I won a contest to enter engineering school. After that it felt like my way was set out before me.

**Did anyone influence you to enter STEM?**

My physics teacher inspired me to become an engineer, as I was considered very good at mathematics and physics "for a girl".

**What was your professional career and background in STEM?**

After receiving my Master of Engineering from EPF, I was hired by an international bank, Societe Generale, to begin my career in IT. I spent my entire career in this international bank - thirty-six years in total! I had the opportunity of moving to new jobs regularly and after training in banking competencies, I worked for ten years in export finance supporting French exporters in different countries. I travelled a lot in this time! Then I worked again in IT on the banking side. In my last position as Senior Manager, I was in charge of information system strategic research at the corporate level, having worked in information system management on

strategic databases for the bank for several years.

In parallel to my career, I have been active in the promotion of women engineers and have held a number of different responsibilities within the French engineering world, as well as within INWES.

**What was it like to be an engineer or scientist when you started out?**

When I started out my professional life, I had a specialty in electronics and I would have liked to find a job in radar; but I couldn't find work in electronics, only in IT. I definitely felt that there was a form of discrimination operating in some scientific and engineering activities, which made them more easily accessible for men. However, over the subsequent three decades, I have seen a lot of progress.

**How have you seen the impact of women in engineering change and develop?**

The National Council of Engineers and Scientists of France (CNISF - Conseil National des Ingénieurs et des Scientifiques de France) has regularly published a survey since 2000 to follow statistics on students in engineering and the career positions of men and women in France. I think it is a very good tool to evaluate the situation. Some figures show change. In 1975, women engineers represented 7% students in engineering schools; they represented 28% in 2014. In 2004, 16% of the engineering population was female, and in 2014 it is 21%.

**Were there any historical events in France that you think dramatically impacted women in engineering and sciences?**

I can't think of any that stand out in particular. Laws on gender equity, that address the salary difference between men and women in engineering, have impacted women engineers. The 2011 law that put in place a quota of 40% women for corporate board positions is starting to have an impact.

**Is there one thing that women today have access to that you wish you had been available when you started out?**

I wish I had had access to information that promoted engineering studies for women and seen female role models represented. I think also, access to networks of women within companies, to help women reach decision-making positions, would have been useful.

**Was there a specific event or set of events that motivated you to start ICWES/INWES? How did you become involved in ICWES/INWES?**

I became involved in INWES at ICWES11 in Japan, when Sue Bird,

who led the group of women involved in the conference series, proposed to create a structure to support the conferences. I had been attending the conferences themselves from 1999 until 2011. The most important motivation for going to the conferences was to meet all the brilliant women engineers and scientists!

I was nominated in 2005 as Chair of ICWES14 which was held in 2008. In 2008, I was elected as a director serving on the board, holding the position of Vice-President of Conferences until 2011 where I was renewed as President-Elect until 2014.

***What can you remember about the process involved in creating ICWES/INWES?***

In 2002, FI - the French organisation for women engineers of which I was President - became one of the founder associations supporting the creation of INWES. FI has had an elected director on the board of INWES until 2014. There were three representatives of FI involved during those twelve years: Marianne Rodot, Yvette Ramos, and I. We participated actively to set up the first Bylaws and Policy Manual, which was changed later in 2014, and I also chaired ICWES14 in Lille, France.

***What are the major milestones, in your opinion, of the past 50 years of ICWES/INWES?***

A major achievement has been the increasing success of the ICWES conferences, and increasing number of attendees. The conferences are opportunities to exchange experiences and build on the innovations made in gender equity in different countries. At ICWES14, we had 500 attendees coming from sixty different countries!

One specific milestone is the forming of an official partnership with UNESCO in 2008 through attaining Operational Status, which was changed to a Consultative Status in 2012. It has been a great support for INWES as we have applied several times to UNESCO's participation programme and received several travel grants to support women scientists and engineers coming from developing countries, who might not otherwise be able to attend ICWES conferences.

***What were the major challenges that had to be overcome to create ICWES/INWES?***

One of the major challenges has been complying with the duties placed on organizations in Canada. It took a lot of time and effort to ensure conformity with relevant bylaws and then to change them again as was necessary in 2013. When you are not a lawyer, it is not an easy task to make sure everything is in order and jump through all the hoops!

Another challenge is raising funds to develop more projects and programmes. We also have to be very present in UNESCO

activities as an NGO in official relationship. For that, we need more volunteers working on this relationship at a national and regional level, as well as with the head office in Paris.

***INWES is a collection of societies - were you involved in any others before becoming involved in INWES?***

In parallel to my career, I have been active in the promotion of women engineers and have held a number of different responsibilities within the French engineering world. At my engineering school, I was President of the Association of EPF Alumnae (1992-1996) and was involved in the EPF board as we decided to introduce men into the school. I later served as executive member of the EPF board (1998-2006). On a national level I served on the board of the CNISF – a national federation of all engineering school alumnae associations, from 1995 to 2001. I also served as President of the French Association of Women Engineers (FI) from 2001 to 2007.

***How has the networking done by INWES impacted your career?***

Since working with INWES, I have stayed up-to-date all subjects related to women's engineering studies to promote them to young girls at school; and also to create business networks for women inside companies, with the aim of mentoring them to reach decision-making positions. It became important to me each time the community of women engineers was a minority in the wider engineering community or the professional world, to spend time to be there and represent them.

***How do you want to see INWES grow in the next 50 years?***

Firstly, we will have to share some activities with other organizations with the same objectives to be stronger and more visible. Secondly, we have to develop the activities of our regional networks to be closer to the institutions and government in different regional areas and be a more influential voice in society. Thirdly, we have to build on opportunities to get new funding support from different countries. For that, we need more volunteers in our member organizations to help INWES to progress. Last but not least, we have to reinforce our relationship with the UN to be the voice of women engineers and scientists.

***What piece of advice would you give to the young women engineers and scientists today?***

More networking everywhere between women engineers and scientists! We have a lot of best practices to share.

# UPCOMING EVENTS

## **International Women in Engineering Day 2017**

International Women in Engineering Day 2017 will take place on 23<sup>rd</sup> June 2017.

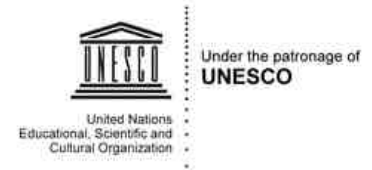
We hope to see events take place all round the world.

To find out more and get involved visit:  
<http://www.inwed.org.uk/>

You can download banners and logos from our resources page.  
Let us know what you have got planned at: [inwed@wes.org.uk](mailto:inwed@wes.org.uk)

Spread the word via twitter (#inwed17) and facebook  
Share your stories and pictures via the INWED Community on Google+

This event is under the patronage of UNESCO.



## **ICWES17 IN INDIA**

The 17<sup>th</sup> International Conference of Women Engineers and Scientists (ICWES17) will be hosted by Women in Science and Engineering (WISE)-India in collaboration with the International Network of Women Engineers and Scientists (INWES) from 5<sup>th</sup> to 7<sup>th</sup> October 2017 at the J.W. Marriott Hotel, Aerocity, in New Delhi, India.



abstracts will be distributed shortly, with submissions due by 31<sup>st</sup> March 2017. Please visit [www.icwes2017.com](http://www.icwes2017.com) for more details.

The mission of the conference is to create a collaborative space to design a scientific and technological roadmap - "Vision 2025" - aimed at sustainable and inclusive growth. Over three days, the international tracks will explore the themes of 'Science and Technology' - covering broadly the technological innovations and research being carried out globally; and 'New Ideas and Solutions' - looking at how we resolve contemporary problems related to the challenges of climate change, water and resource management, renewable energy, and sustainability. An exclusive track at ICWES17 has been assigned to discuss professional issues for women such as capacity-building, equitable and fair growth opportunities, and the gender-sensitive work environment, to enhance the participation of women in STEM globally. A call for

ICWES17 is a great opportunity to share and learn from each other's experiences and research findings. Numerous Indian senior industry professionals, as well as experts from across the world, have already expressed a desire to participate and present papers at the conference. ICWES17 will showcase an industry exhibition as well as a job-fair, which we think will be of particular interest to young women professionals exploring further career opportunities. Along with professional and academic activities, programmes of entertainment, fun, and sightseeing have been planned to accompany ICWES17, to give you and any accompanying visitors a chance to enjoy yourselves and build lasting memories. Overall, WISE India is looking forward to making ICWES17 a stimulating and culture-rich experience.

## **11<sup>TH</sup> FEBRUARY - THE INTERNATIONAL DAY OF WOMEN AND GIRLS IN SCIENCE.**

The United Nations regards science and gender equality as both vital for the achievement of internationally agreed development goals, including the 2030 Agenda for Sustainable Development; and is committed to encouraging full and equal access to and participation in science for women and girls. To reflect these aims, the United Nations General Assembly adopted a resolution declaring 11<sup>th</sup> February as the International Day of Women and Girls in Science, and the day was launched last year.

For this year's International Day of Women and Girls in Science, INWES will be launching a video to celebrate INWES and promote women and girls in STEM – featuring clips from members all round the world. We have also invited members to celebrate by organizing events within their own organisations or communities – such as round table discussions, seminars, or even walks. We look forward to sharing these events with you in the next newsletter.

# ABOUT INWES

## **I. Executive Officers:**

President: Kong-Joo Lee (South Korea)  
President elect: Liette Vasseur (AFFESTIM - Canada)  
Treasurer: Joan Graf (USA)  
Secretary General: Margaret Ajibode (WES - UK)  
Vice President: Gail G. Mattson (AAAS - USA)  
Vice President: Marlene Kanga (Engineers Australia - Australia)  
Vice President: Roseni Dearden (UK)

## **II. Other Board Members:**

Durdana Habib (WESTIP - Pakistan, Central Asia)	Seong Ok Han (KWSE - South Korea, Far East Asia)
Rufina Dabo Sarr (AFSTech/Sénégal - Senegal, French Speaking Africa)	Kayoko Sugahara (INWES Japan - Japan, Far East Asia)
Sylvia Kegel (DIB - Germany, Western Europe)	Aude Abena (AFISC - Cameroon, French Speaking Africa)
Caroline Thoruwa (AWSE - Kenya, English Speaking Africa)	Sangeeta Wij (WISE-India - India, South East Asia)
Ewa Okon-Horodynska (Individual - Poland, Eastern Europe)	Chia-Li Wu (TWiST - Taiwan, Far East Asia)
	Yvette Ramos (Swiss Engineering - Switzerland, Western Europe)

## INWES SPONSORS

**Platinum Sponsor:** Samsung

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## INWES MEMBER NEWSLETTER

**Deadline for Issue No. 23:** 1<sup>st</sup> May

**Contact:** Roseni Dearden, Communication & Newsletter Committee

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